

Work Order ID 70171

Monday, May 30, 2011 1:48:31 PM



Page 1

Item ID: D3391-025

Accept



Setup Start



Revision ID:

Item Name: Aft Tube Assembly

Stop



Start Date: 5/31/2011 Start Qty: 1.00

Required Date: 6/10/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan: *MF*

Date: *11-05-30*

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start



Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D3391

Rev H/ DEO

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

Turn as per Folio FA599

Rev: *AA* & Dwg D3391 Rev: *H*

M.M.L 11/06/06

scribe batch # on fwd end at 90 degree

110

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Memo

0.00

Quality Control

OK 11/06/06

111

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

Good 11.06.07

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-025 PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR: <u>70171</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11.05.08	160	BEND IS OVER TOL. ON HEIGHT BY 0.06" P.C. Process	<i>CP</i> 11.06.08 <i>PSH/42</i>	Acceptable	<i>CP</i> 11.06.08	<i>S</i> initially	<i>CP</i> 11.06.08 <i>PSH/42</i>	<i>S</i> initially

NOTE: Date & initial all entries

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what needs to be achieved and provides a clear direction for the team.

3. The third step is to develop a plan or strategy to address the problem. This involves breaking down the problem into smaller, manageable tasks and determining the resources needed to complete each task.

4. The fourth step is to implement the plan. This involves putting the strategy into action and monitoring progress regularly to ensure that the project is on track.

5. The final step is to evaluate the results of the project. This involves comparing the actual outcomes against the objectives and goals to determine the effectiveness of the project.

Monday, May 30, 2011 1:48:31 PM

Accept

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Setup Start

Stop

11-11-11

Cust Item ID:[illegible]

Customer:

Run Start

Stop

SECRET

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------	--------	-----------	------------	------------	---------------	-------------

0.00

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine as per Folio-FA 599 Rev: AA & Dwg D3391 Rev: H
2-Deburr

mf 11/06/08

~~met 11/06/06~~

0.00



QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

0.00

[illegible]

QC8- Inspect parts - second check

QC

Memo

0.00

Quality Control

ml 11/06/08

29 10. C. 8

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 70171

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Item ID: D3391-025

Accept



Setup Start



Revision ID:

Stop



Item Name: Aft Tube Assembly

Start Date: 5/31/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/10/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150



Skidtubes

Skidtubes

0.00

Memo

0.00

1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803



11-6-8

160



CNC Bend 1

BENDING MACHINE - SKIDTUBES

0.00

Memo

0.00

Form as per Dwg D3391 Using Bend Prog 3391025



11-6-8

Ptc

170



QC

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Quality Control

11.06.08

1st page

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____






NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			



NOTE: Date & initial all entries


Work Order ID 70171

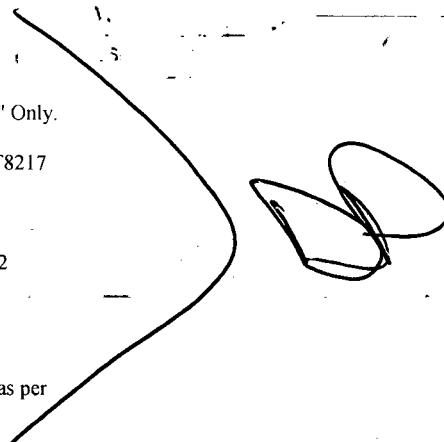
Page 4

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Item ID: D3391-025 Accept  Setup Start 
Revision ID: Stop 
Item Name: Aft Tube Assembly
Start Date: 5/31/2011 Start Qty: 1.00  Cust Item ID:
Required Date: 6/10/2011 Req'd Qty: 1.00  Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start 
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop 

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180  Skidtubes	Skidtubes	0.00							
Skidtubes	Memo	0.00							
Skidtubes	1-Open Aft cap pilot hole to .208" as per Dwg D3391								
	2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.								
	3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig . *****Do Not Open To Finished Size*****								
	4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.								
	5-Open wearplate holes to 0.250" and c'bore as per dwg D3391								
	6-Open up all wearshoe , wearplate to 0.297"and float bag holes to 0.328" as per Dwg D3391.								
	7-Deburr								

 11-6-9

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 70171

Monday, May 30, 2011 1:48:31 PM



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Item ID: D3391-025

Accept



Setup Start



Revision ID:

Stop



Item Name: Aft Tube Assembly

Start Date: 5/31/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/10/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Suloblos

Memo

0.00

200



HandFinish

Hand Finishing

Chemical Conversion Coat per QSI005 4.1

0.00

Suloblos

Memo

0.00

x1

11/06/09

210



QC

Quality Control

QC3- Inspect Part Finish

0.00



11-6-9

Memo

0.00

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 70171

Monday, May 30, 2011 1:48:31 PM



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Item ID: D3391-025

Accept



Setup Start



Revision ID:

Stop



Item Name: Aft Tube Assembly

Start Date: 5/31/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/10/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220



Skidtubes

Skidtubes

0.00

Memo

0.00

Instal spacers as per dwg D3391

A/R Magnabond 6398 Batch: 1116677

exp. date: 11-8-30

cure time 12hrs as per QSI0015

11-6-9

230



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Subtotal

40

235



HandFinish

Hand Finishing

Pressure Wash per QSI005 4.3

0.00

Memo

0.00

AND REALODINE AS PER PAR09-043

1 d M uloc 12

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

[illegible]

Monday, May 30, 2011 1:48:32 PM

Accept

[illegible]**Setup Start**

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

Stop

[illegible][illegible]**Cust Item ID:**

Abstract

Customer:

Reference:

Run Start

Abstract

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop

Abstract

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

**Insp.
Stamp**

0.00

QC

Memo

0.00

Quality Control

14

Identify as per dwg & Stock Location: W/O

0.00

Packaging

Memo

0.00

Packaging

QC21- Final Inspection - Work Order Release

0.00

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Journal of Internal Medicine 247: 105–112
Received 12 July 1999; accepted 12 October 1999
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E-mail: m.j.griffin@cam.ac.uk
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Journal of Internal Medicine 247: 105–112

QC

Memo

0.00

Quality Control

11/6/14 DJ
CZ1106113

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Monday, May 30, 2011 1:48:22 PM

Page 1

Work Order ID: 70171

Parent Item: D3391-025

Parent Item Name: Aft Tube Assembly



Start Date: 5/31/2011

Required Date: 6/10/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev B 06-02-07 ECN773 dwg rev. D EC
 IPP Rev:C 06-03-28 Update Manuf. Instructions JLM □□□□
 IPP rev D 07.03.20 revF dwg EC
 IPP rev E 07.11.07 rev G dwg ecn 1053p EC verified by: DD
 IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC
 IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6014-090 ALUMINUM EXTRUSION		Manufactured	No			100	Each	7.0000	1	1			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		7							
				56572		7							
D3670-4-200 SPACER		Manufactured	No			230	Each	59.0000	4	4			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		59							
				68950		59							
D2646 Aft Cap		Manufactured	No			270	Each	36.0000	1	1			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				FP006		35							
				62678		35							
				FP-4		1							
				69019		1							

man. 11/6/1

11-6-9

ul 11/6/13

XI

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 2

Work Order ID: 70171

Parent Item: D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/31/2011

Required Date: 6/10/2011

Start Qty: 1.00

Required Qty: 1.00

D3537-1

Manufactured No

270

Each

6.0000

1

1



Wearpad



Handwritten: 11/06/13

Location

Loc Qty

Loc Code

FP017

6

Handwritten: 136817

Handwritten: 11

63313

2

66935

4

D3537-7

Manufactured No

270

Each

4.0000

1

1



Wearpad



Handwritten: 11/06/13

Location

Loc Qty

Loc Code

FP017

4

Handwritten: 65146

4

Handwritten: 11

D3553-1

Manufactured No

270

Each

16.0000

1

1



Gasket



Handwritten: 11/06/13

Location

Loc Qty

Loc Code

FP013

16

Handwritten: 56568

16

Handwritten: 11

D3553-3

Manufactured No

270

Each

40.0000

1

1



Gasket



Handwritten: 11/06/13

Location

Loc Qty

Loc Code

FP

20

31631

20

FP013

20

Handwritten: 53480

20

Handwritten: 11

Monday, May 30, 2011 1:48:22 PM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Monday, May 30, 2011 1:48:22 PM

Work Order ID: 70171

Parent Item: D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/31/2011

Required Date: 6/10/2011

Start Qty: 1.00

Required Qty: 1.00

D3672-1 Manufactured No
Phenolic Washer

270 Each 1,204.000 2 2



JL u106112

LocationLoc QtyLoc Code

ST074

1204

64177

704

66821

500

x2

ALS4-1032-130 Purchased No
Insert

260 Each 2,232.000 14 14



JL u106113

LocationLoc QtyLoc Code

ST281

242

117331

242

ST282

1990

117717

1990

x14

ALS4-1032-225 Purchased No
Insert

270 Each 1,437.000 12 12



JL u106113

LocationLoc QtyLoc Code

ST282

1437

110768

637

117717

800

x12

AN3C4A Purchased No
BOLT

270 Each 2,361.000 6 6



JL u106113

LocationLoc QtyLoc Code

ST350

2361

117094

955

117313

106

117688

800

117795

500

x6

Monday, May 30, 2011 1:48:22 PM

Shop Packet Print

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Monday, May 30, 2011 1:48:22 PM

Page 4

Work Order ID: 70171



Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 5/31/2011

Required Date: 6/10/2011

Start Qty: 1.00

Required Qty: 1.00

AN3C5A

Purchased

No

270

Each

1,384.000

4

4



Bolt



ul ulowelz

Location

Loc Qty

Loc Code

FP-A

7

115835

7

ST350

1377

116419

220

116549

57

117343

500

117508

300

117764

300

x4

AN960C10L

NAS1149C0332
R

Purchased

No

270

Each

0.0000

10

10



washer

NL117291



(x10) ul ulowelz

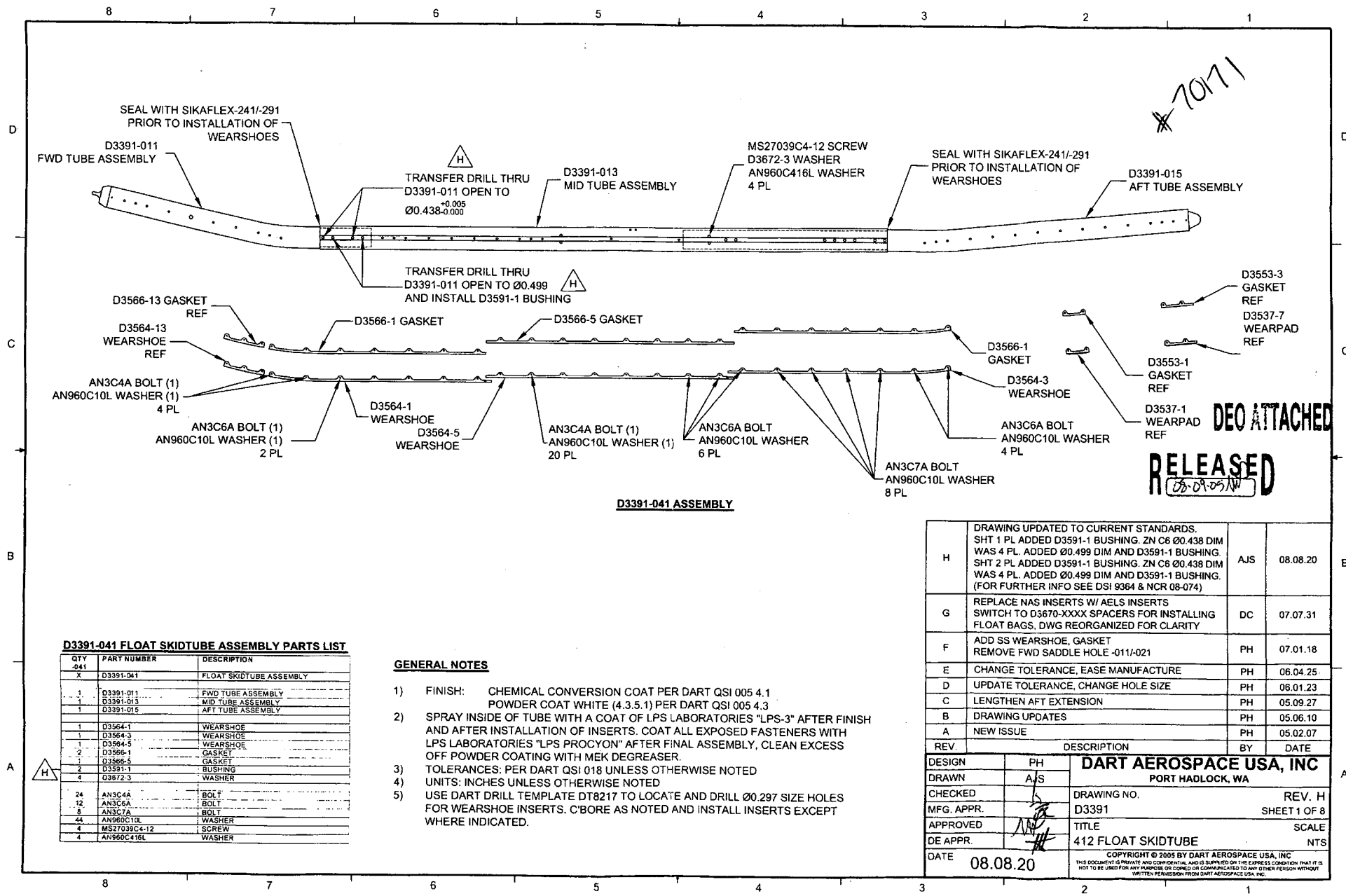
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries







D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
2	D3591-1	BUSHING
2	D3672-3	WASHER
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 1 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

Dart Aerospace Ltd

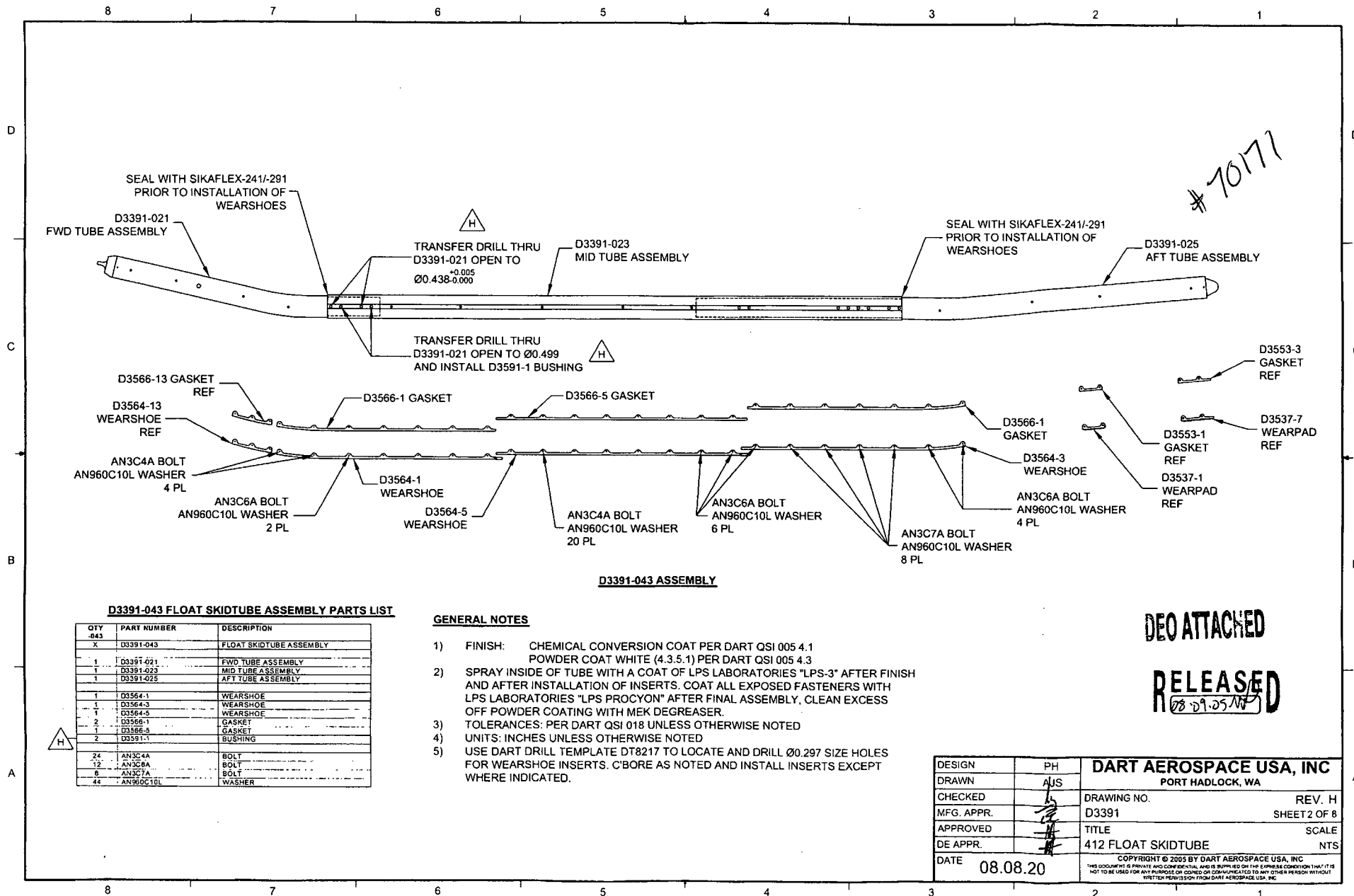
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



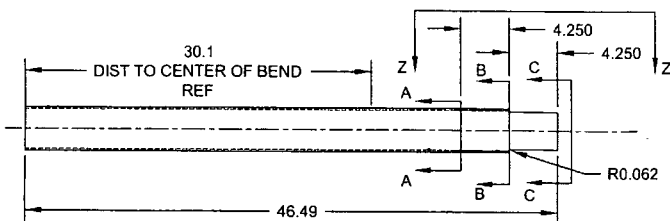
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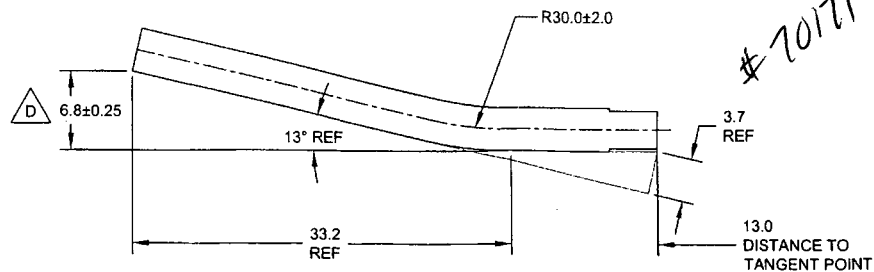
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

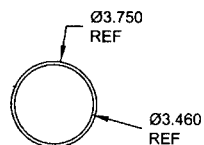
NOTE: Date & initial all entries



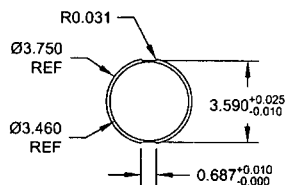
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



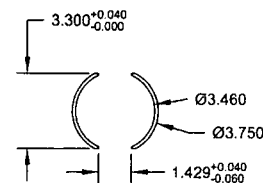
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



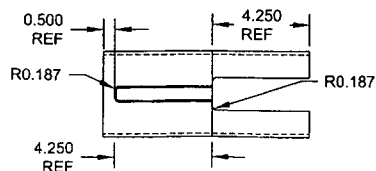
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

DEO ATTACHED
RELEASED
28 JAN 05 NW

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AUS	PORT HADLOCK, WA	
CHECKED		DRAWING NO. D3391	REV. H
MFG. APPR.		SHEET 3 OF 8	
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
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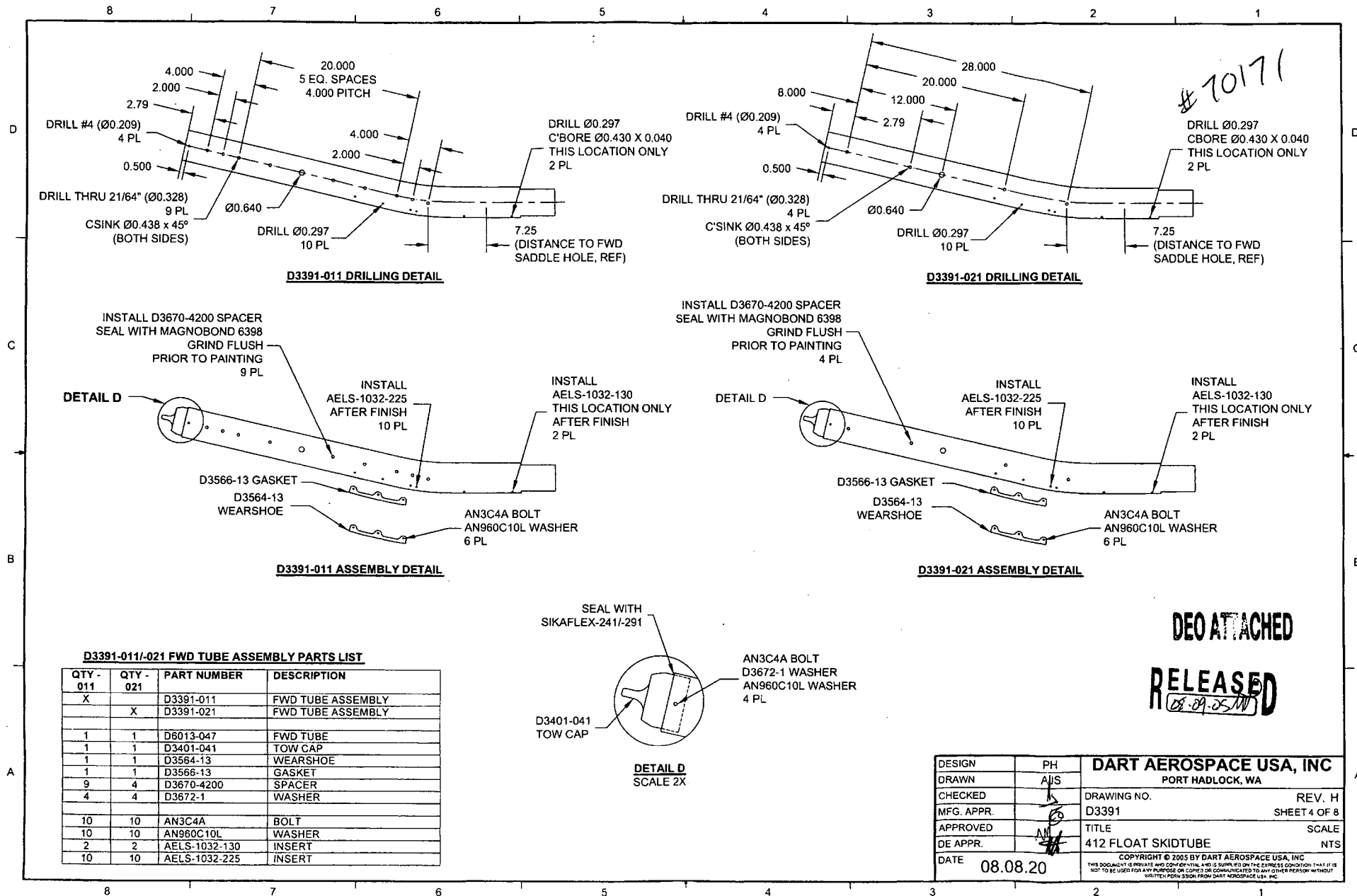
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



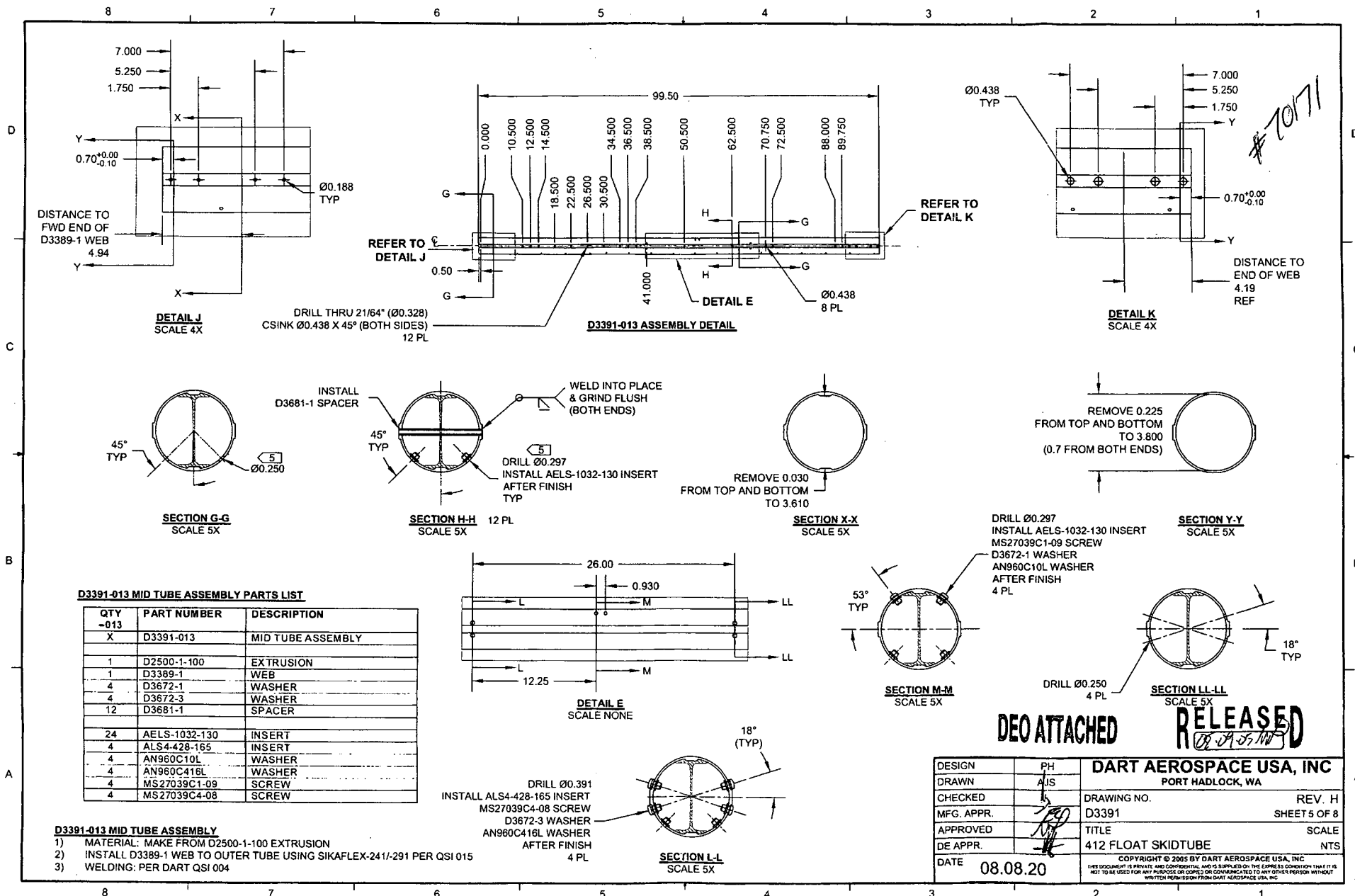
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



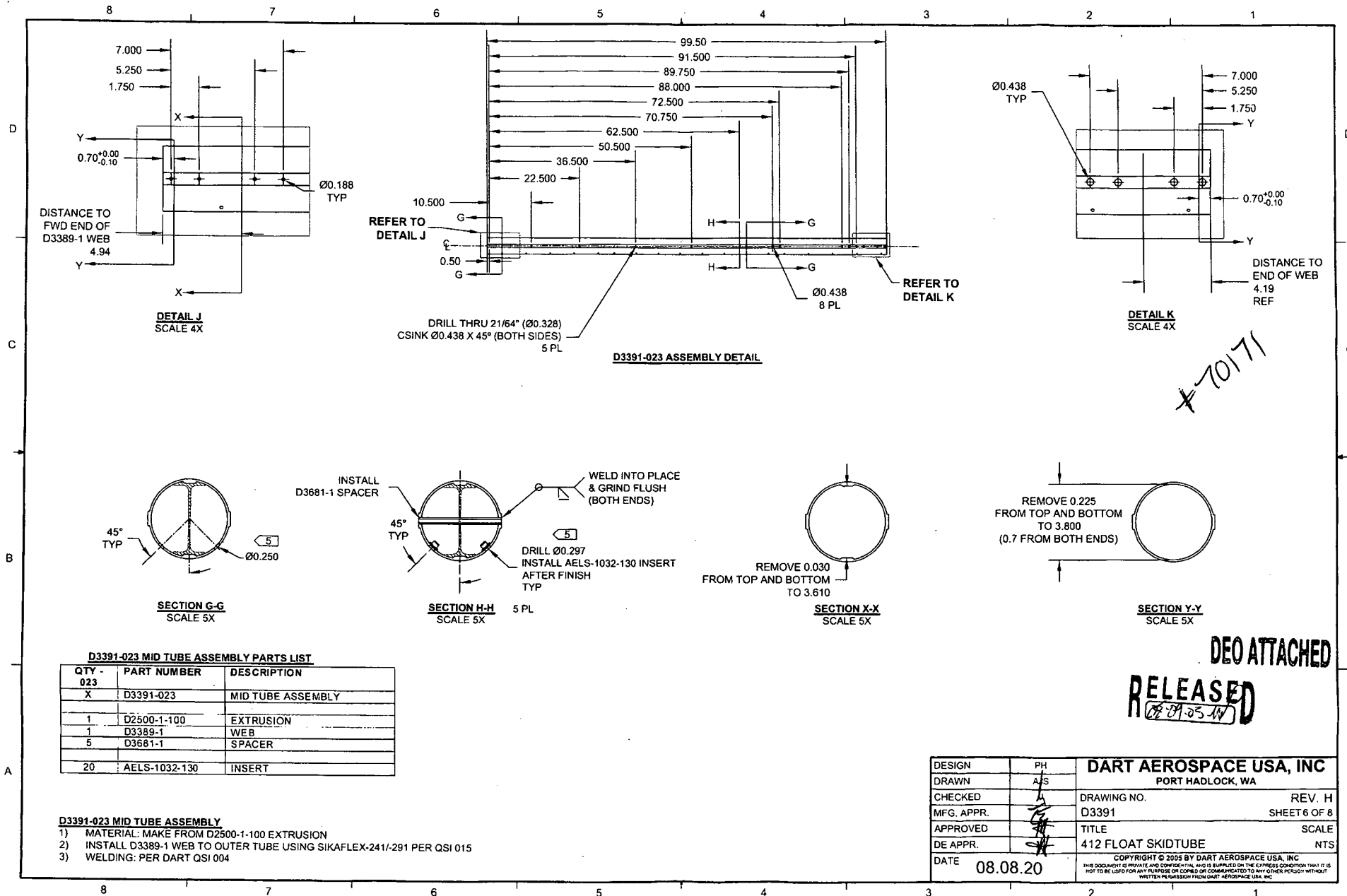
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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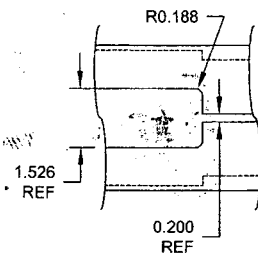
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

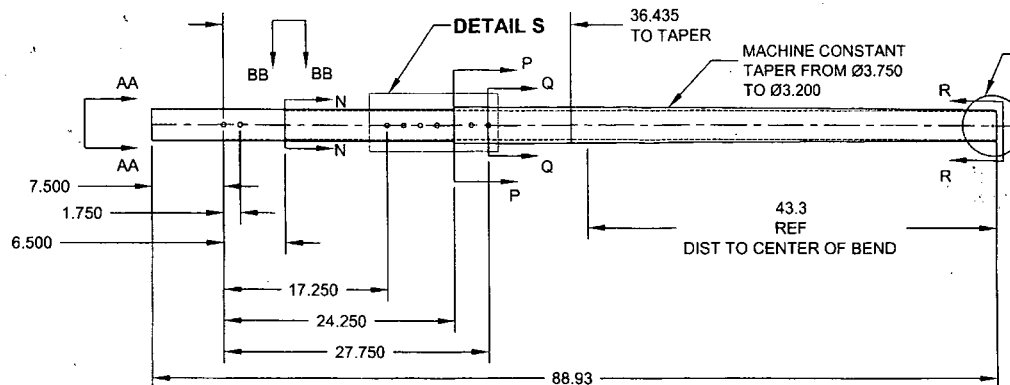
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

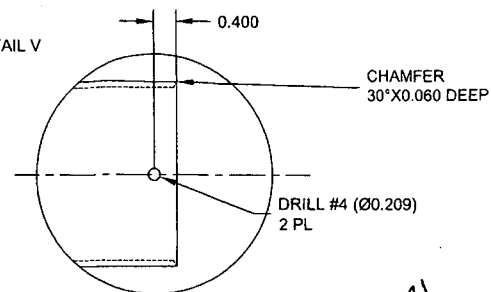
NOTE: Date & initial all entries



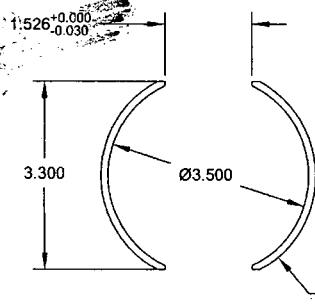
VIEW BB-BB
SCALE 4X



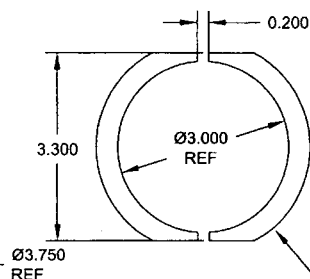
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



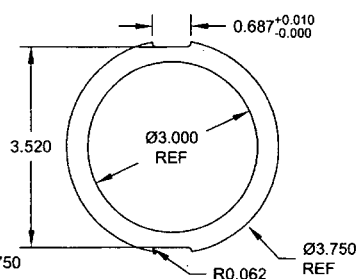
DETAIL V
SCALE 6X



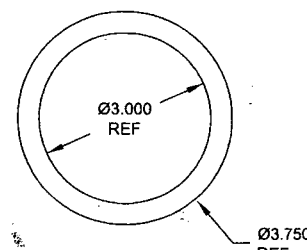
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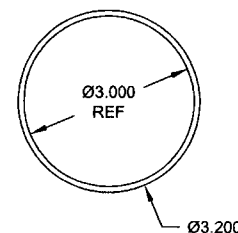
SECTION N-N
SCALE 6X



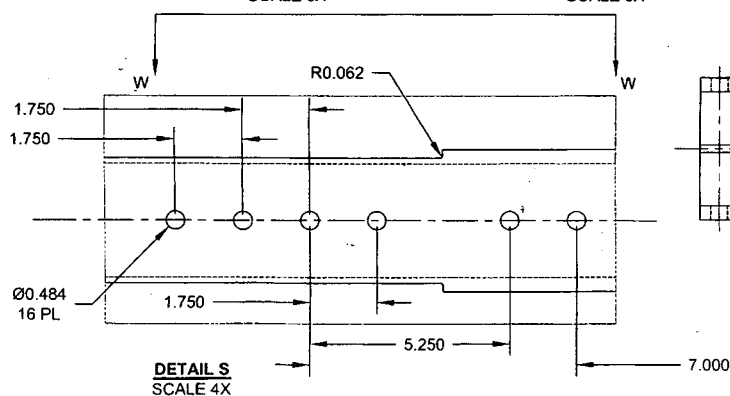
SECTION P-P
SCALE 6X



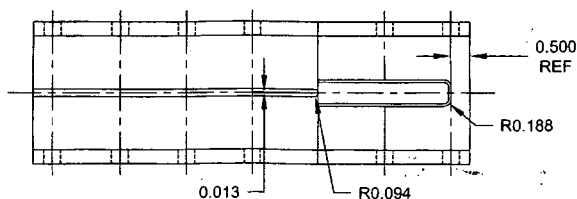
SECTION Q-Q
SCALE 6X



SECTION R-R
SCALE 6X



DETAIL S
SCALE 4X



VIEW W-W
SCALE 4X

DEO ATTACHED

RELEASED
08-09-25

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AUS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 7 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
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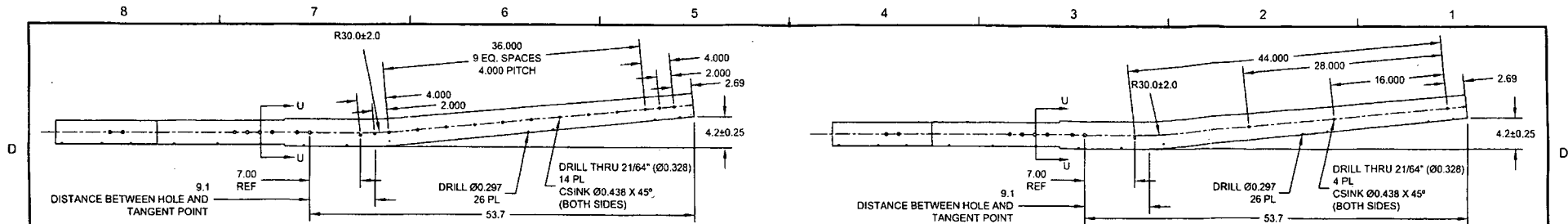
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

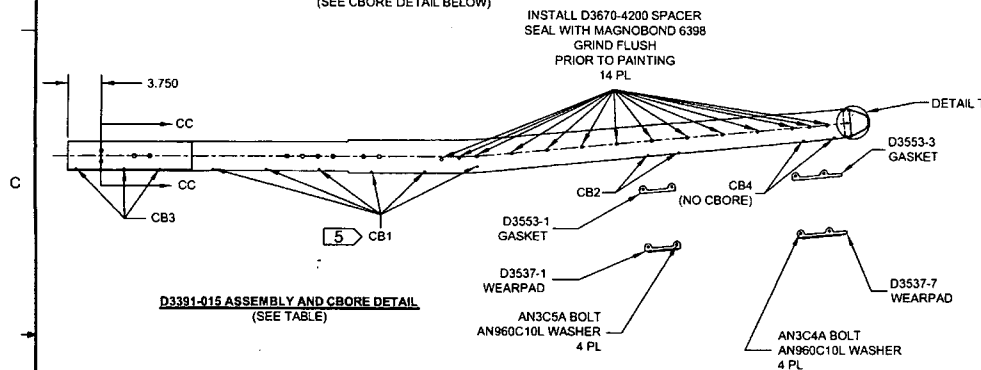
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

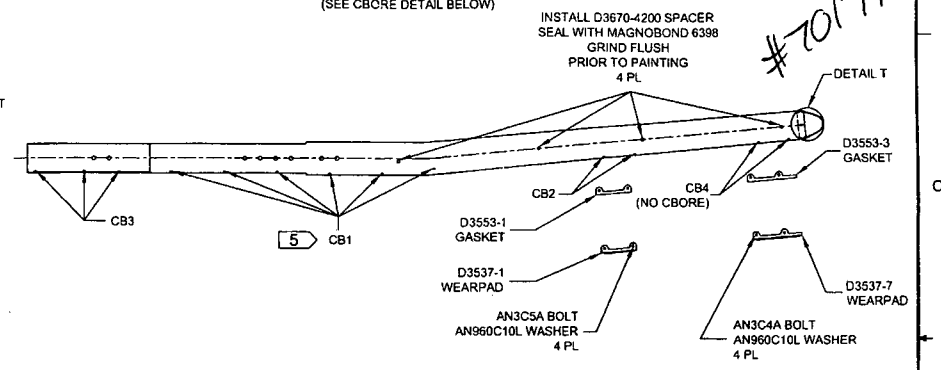


D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)

D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



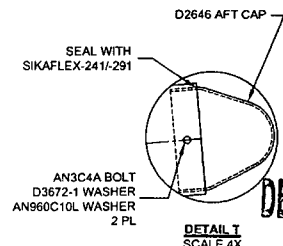
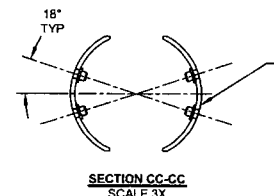
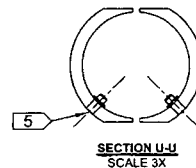
D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)



D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-080	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D3391	SHEET 8 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	412 FLOAT SKIDTUBE	NTS
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08-09-05/14

DEO ATTACHED

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	REV. H	DART AEROSPACE USA, INC ENGINEERING ORDER		D.E.O. NO. D3391-H-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>CP</i>	CHECKED <i>h</i>	MFG. APPR. <i>AA</i>	APPROVED <i>MP</i>		DE APPR. <i>h</i>		
DATE 09.09.23	DATE 09.09.24	DATE 09/09/25	DATE 09/09/30		DATE 09/09/30		

PURPOSE:

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

CHANGE:

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

- 2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH~~
~~AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH~~
 LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
 OFF POWDER COATING WITH MEK DEGREASER.

RELEASED
 2010-02-02

MP

#7071

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 70171
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391	Rev: H	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
14.000	+/-0.010	14.000	✓		tape	EC-11
3.500	+/-0.010	3.504	✓		vern	JF-01
88.93	+/-0.030	88.93	✓		tape	EC-11
44.995	+/-0.030	44.995	✓		li	
Ø3.200	+/-0.010	3.195	✓		vern	JF-01
88.93	+/-0.030	88.93	✓		tape	EC-11
Ø3.750	+/-0.010	3.746	✓		micr	cvc-005
30° x 160° chamfer	+/-0.010	30° x 160°	✓			

Measured by: *amg*

Date: 11/06/03

Audited by: *[Signature]*

Date: 11/06/06

HAAS Section						
1.526	+0.000/-0.030	1.520	—		Vern HL-2	
7.500	+/-0.010	7.500	—		"	
27.750	+/-0.010	27.750	—		M-tape HL-2	
31.750	+/-0.010	31.750	—		"	
35.250	+/-0.010	35.250	—		"	
3.300	+/-0.010	3.300	—		Vern HL-2	
0.200	+/-0.010	0.200	—		"	
3.520	+/-0.010	3.524	—		"	
0.687	+0.010/-0.000	0.687	—		"	
R0.062	+/-0.010	R0.062	—		RL	
Ø0.484	+0.005/-0.001	0.488	—		Vern HL-2	

Measured by: *amg*

Date: 11/06/08

Audited by: *RE*

Date: 11.6.8

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	<i>[Signature]</i>

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries